Test - Direct and inverse proportion

Year: Year 9 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Direct proportion

y is directly proportional to x. When $x = 7$, $y = 35$.

a. Find the constant of proportionality. (1 mark)
b. Write an equation for y in terms of x. (1 mark)
c. Find y when $x = 12$. (1 mark)
d. Find x when $y = 95$. (1 mark)

Question 2 (4 marks)

Question 2 – Inverse proportion

y is inversely proportional to x. When $x = 15$, $y = 4$.

a. Find k in $y = \frac{k}{x}$. (1 mark)
b. Find y when $x = 20$. (1 mark)
c. Find x when $y = 12$. (1 mark)
d. Describe what happens to y when x is multiplied by 3. (1 mark)

Question 3 (4 marks)

Question 3 – Shopping for the art club

6 pencils cost £2.28.

a. Find the cost of one pencil. (1 mark)
b. Find the cost of 15 pencils. (1 mark)
c. The club has £9.50. How many pencils can it buy? (2 marks)

Question 4 (4 marks)

Question 4 – Problem: painting the hall

Five decorators can paint the village hall in 6 days, all working at the same rate.

a. How many decorator-days of work are needed? (1 mark)
b. How long would 3 decorators take? (1 mark)
c. The hall must be ready in 4 days. How many decorators are needed? Explain your answer. (2 marks)

Question 5 (4 marks)

Question 5 – Is it proportional?

The table shows pairs of values of x and y.

x	2	4	5	10
y	20	10	8	4

a. Show that y is inversely proportional to x. (2 marks)
b. Write a formula for y. (1 mark)
c. Find y when $x = 16$. (1 mark)